

# 1974-79 TUNE-UP PROCEDURES

## Mercedes-Benz 6-Cylinder

1-69

**280, 280C, 280CE, 280E, 280S, 280SE**

### ENGINE IDENTIFICATION

First 6 digits of engine identification number identify engine. Number is located on tag, on front left side of engine crankcase.

#### ENGINE CODES

Application	Code
280 & 280C .....	110.921
280S .....	110.922
280SE .....	110.985

### MODEL IDENTIFICATION

#### VEHICLE IDENTIFICATION NUMBER

First 6 digits of Vehicle Identification Number identify models. Number is located above instrument panel and visible through windshield, and on a tag on rear firewall of engine compartment.

#### VIN CODES

Application	Code
280 .....	114.060
280C .....	114.073
280CE .....	123.053
280E .....	123.033
280S .....	116.020
280SE .....	116.024

### ENGINE COMPRESSION

Check compression pressure with engine at normal operating temperature and throttle valve fully open. Crank engine a minimum of 8 revolutions.

#### COMPRESSION PRESSURE SPECIFICATIONS

Application	Pressure
Normal Pressure .....	130-144 psi (9-10 kg/cm <sup>2</sup> )
Minimum Pressure .....	108 psi (7.5 kg/cm <sup>2</sup> )
Maximum Variation .....	21 psi (1.5 kg/cm <sup>2</sup> )

### VALVE CLEARANCE

#### VALVE CLEARANCE SPECIFICATIONS

Engine Temp.	Intake	Exhaust
Cold .....	.004" (.10 mm)	.010" (.25 mm)
Warm .....	.006" (.15 mm)	.012" (.30 mm)

### VALVE ARRANGEMENT

Right Side - All Exhaust.  
Left Side - All Intake.

### SPARK PLUGS

#### SPARK PLUG SPECIFICATIONS

Application	Specification
Gap	
1974-76 Models .....	.024" (.6 mm)
1977-79 Models .....	.028-.032" (.7-.8 mm)
Torque .....	18-22 ft. lbs. (24-30 N.m)

#### SPARK PLUG TYPE

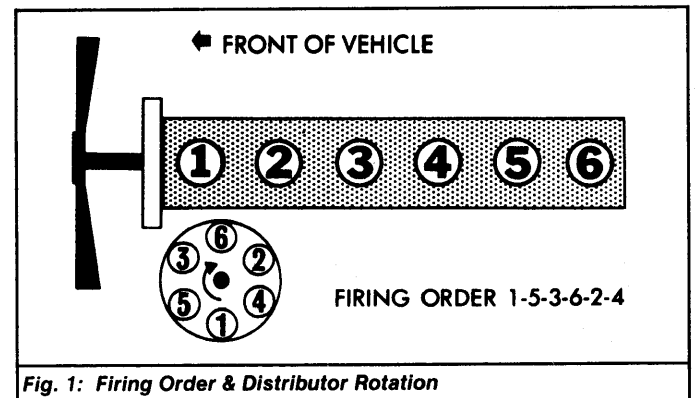
Application	Champion No.
1974-76 Models .....	N9Y
1977-79 Models .....	N10Y

### HIGH TENSION WIRE RESISTANCE

Carefully remove high tension wires from spark plugs and distributor cap. Using an ohmmeter, measure resistance while gently twisting wire. If resistance is not to specifications or fluctuates from infinity to any value, replace wire(s).

#### HIGH TENSION WIRE RESISTANCE

Application	Resistance (Ohms)
All Models .....	25,000-30,000



### DISTRIBUTOR

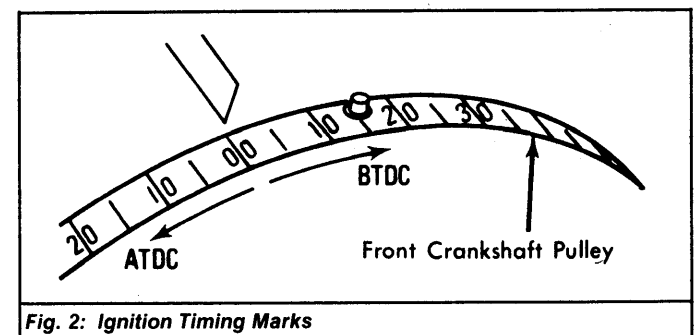
Vehicles are equipped with Bosch single-point distributors or Bosch electronic ignition systems.

#### DISTRIBUTOR SPECIFICATIONS

Application	Specification
Point Gap .....	.016" (0.4 mm)
Dwell Angle .....	33-35°
Breaker Arm Spring Tension .....	18-22 ozs. (500-630 g)

### IGNITION TIMING

Check or adjust ignition timing with engine at normal operating temperature, idle speed set to specifications, and distributor vacuum lines connected.



#### IGNITION TIMING SPECIFICATIONS

Application	RPM	Timing
1974 Models .....	800	4°ATDC
1975-76 Models .....	800	7°BTDC
1977-79 Models .....	800	TDC

### IDLE SPEED & MIXTURE

1974 Models - 1) Make sure dwell angle, ignition timing, and spark plug gap are set to specifications. Adjustments must be made with air cleaner installed and crankcase breather connected. Run engine until normal operating temperature is reached.

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- 2) Disconnect regulating rod on carburetor. Check throttle valve shaft for easy movement, while increasing speed to obtain 3000 RPM with throttle valve lever. Release throttle valve lever. Lever should return to stop of vacuum governor.
- 3) Adjust idle speed to specifications by means of the idle speed adjusting screw. Check if idle speed stop occurs on throttle valve lever and not on vacuum governor. Loosen spring of vacuum governor, if required, by setting adjusting nut at governor. See Fig. 3.
- 4) On air injection equipped models, disconnect Red vacuum hose to cancel air injection. On all models, turn mixture screws toward stop. Now, turn both screws simultaneously and equally to left until specified CO% level is obtained.
- 5) Check idle speed and adjust if necessary. Repeat CO% level adjustment if idle speed was altered. On air injection equipped models, reconnect Red vacuum hose and check idle speed and CO% level with air injection connected.

- 6) Close bore for idle mixture adjusting screw, accelerate engine briefly, and check CO% level at idle speed. Readjust if necessary. Install air cleaner and recheck both idle speed and CO% level.
- 7) Connect Blue vacuum hose to thermo-vacuum valve. Place automatic transmission in Drive, turn on air conditioning, and turn steering wheel to a full-lock position. Engine should continue to run smoothly. If not, readjust idle speed.

### IDLE SPEED & CO% LEVEL SPECIFICATIONS

Application	Idle RPM	CO%
1974 Models		
W/O Air Injection	750-950	1.5 Max.
With Air Injection		
Disconnected	700-900	6.0-8.0
Connected	700-900	1.5 Max.
1975-76 Models	800-900	1.0 Max.
1977-79 Models	850	0.4-2.0

### COLD (FAST) IDLE RPM

**1974 Models** - With idle speed set to specifications, raise throttle lever valve slightly and place stepped disc up against stop. Release throttle lever and check fast idle speed. Adjust fast idle speed to specifications by turning adjusting screw. See Fig. 4.

**NOTE:** Cold fast idle speed is not adjustable on 1975-79 models.

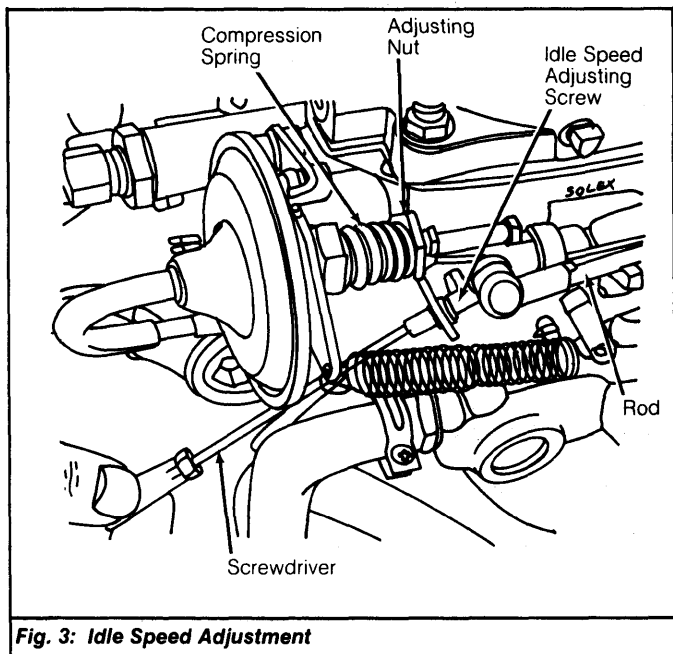


Fig. 3: Idle Speed Adjustment

- 1975-76 Models** - 1) Make sure dwell angle, ignition timing, and spark plug gap are set to specifications. Adjustments must be made with air cleaner installed and crankcase breather connected.
- 2) With engine at normal operating temperature, adjust idle speed to specifications by means of the idle adjusting screw. Connect exhaust gas analyzer to vehicle.
- 3) Run engine at idle and disconnect Blue/Purple vacuum hose at connection in engine compartment to cancel air injection. If necessary, adjust CO% level to specification by means of mixture adjusting screws. Reconnect vacuum hose and recheck idle speed.
- 1977-79 Models** - 1) Make sure spark plug gap and ignition timing are set to specifications. Check air intake system for leaks. Turn off A/C system when making adjustments.
- 2) Run engine until it reaches normal operating temperature, about 140-176°F (60-80°C) oil temperature. Remove air cleaner and ensure cruise control cable rests tension-free against throttle lever.
- 3) Disconnect control rod at bellcrank. Ensure that throttle valve is at idle speed stop and reconnect control rod tension-free. Cam roller should be resting free of play in gate lever.
- 4) Adjust idle to correct RPM, using idle air adjusting screw. Using Adapter (700 589 0707 00), connect exhaust gas analyzer to exhaust pick-up tube (exhaust back pressure line).
- 5) Check CO% level with air injection disconnected. To do so, remove and plug Blue vacuum hose on Blue thermo-vacuum valve. To adjust CO% level, remove plug from mixture control regulator. Insert Allen wrench and turn idle mixture adjusting screw clockwise to richen mixture.

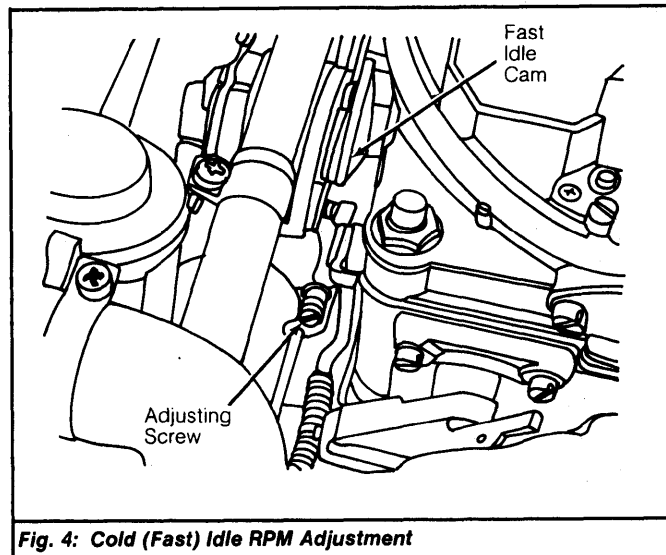


Fig. 4: Cold (Fast) Idle RPM Adjustment

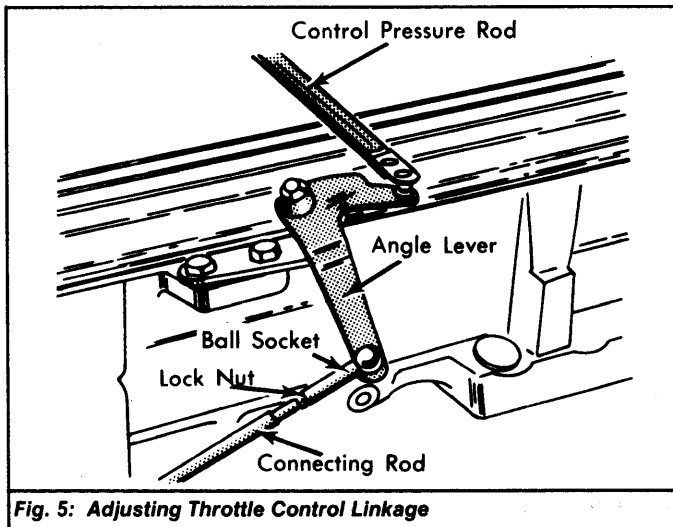
### COLD (FAST) IDLE SPEED SPECIFICATIONS

Application	RPM
1974 Models	2400-2600
1975-76 Models	1700-1900

### THROTTLE CONTROL LINKAGE

- 1974-76 Models** - 1) With engine idling, disconnect control pressure rod from automatic transmission and push slide rod together. Push angle lever toward rear. See Fig. 5. Push control pressure rod toward rear, against stop and attach ball socket. Adjust if necessary.
- 2) Basic adjustment of control rod and connecting rod is determined by length in relation to angle lever. Control rod length should be 4.72" (120 mm) long, measured from center of ball sockets. Connecting rod length should be 12.17" (310 mm) long.

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**Fig. 5: Adjusting Throttle Control Linkage**

**1977-79 Models** - 1) Check control linkage for easy operation and straightness. Disconnect throttle control rod and check whether throttle valve rests against idle stop. Reconnect control rod. Adjust control rod so that the roller rests tension-free in slot of engine lever.  
 2) With engine stopped, press down accelerator pedal inside vehicle until it rests on kickdown switch. Throttle valve lever should rest against full throttle stop. If necessary, adjust control linkage at hex nut until throttle valve lever rests against full throttle stop.  
 3) If full throttle stop or the idle stop is not reached with this adjustment, adjust control rod connecting the horizontal shaft to the accelerator pedal.  
 4) Adjust automatic transmission control pressure rod at idle position. Disconnect rod and push toward rear against the stop. Reconnect rod tension-free, adjusting ball socket if necessary.

**CONTROL ROD LENGTH ADJUSTMENTS**

Application	Length In. (mm)
Throttle Control Rod .....	13.50 (343)
Control Rod (Over Top of Engine) .....	12.05 (306)
Accelerator Pedal Control Rod .....	7.32 (186)

**FUEL PUMP**

**1977-79 Models** - 1) Remove fuel return hose from fuel distributor. Connect short length of hose at point of removal. Hold end of hose in measuring container. Turn on ignition.

2) Disconnect plug on safety switch for 30 seconds and reinstall plug. If delivery rate is below specifications, check for 11.5 volts at fuel pump, kinks in lines, faulty fuel filter or accumulator. If all are okay, replace fuel pump and reconnect return line.

**FUEL PUMP SPECIFICATIONS**

Application	Specification
Pressure	
1974-76 Models .....	3.6-5.4 psi (.25-.38 kg/cm <sup>2</sup> )
Volume	
1977-79 Models .....	1.06 qts. (1.0 L) in 30 seconds

**EXHAUST EMISSION SYSTEMS**

See appropriate articles in EXHAUST EMISSION SYSTEMS section.

**IGNITION SYSTEM**

**DISTRIBUTOR**

Vehicles are equipped with Bosch single-point distributors or Bosch electronic ignition systems.

**Other Data & Specifications** - See appropriate Bosch ignition system article in DISTRIBUTORS & IGNITION SYSTEMS section.

**IGNITION COIL**

**IGNITION COIL SPECIFICATIONS**

Application	Resistance (Ohms)
Primary .....	.33-.46
Secondary .....	7000-12,000

**FUEL SYSTEMS**

**CARBURETOR**

**CARBURETORS**

Application	Model
1974-76 Models .....	Solex 4A1 4-Bbl.

**FUEL INJECTION**

All 1977-79 models use Bosch CIS fuel injection system.  
**Other Data & Specifications** - See Bosch CIS Fuel Injection article or appropriate Solex Carburetor article in FUEL SYSTEMS section.